

Amendment Dated: August 18, 2008

Response to Official Action Dated: April 16, 2008

Application Serial No. 10/572,722

Aeg 7/11/09

In the Specification:

Please amend the paragraph beginning on page 4, line 16 to read as

H Aeg 7/11/09

follows:

Preferably, the cable routing means comprises a bar member having a longitudinal axis and including a cable entry port adapted to allow a cable to pass directly therethrough when said bar member is in a first non-cable-gripping routing orientation, and wherein upon rotation of said bar member through at least 90° about said longitudinal axis, a second cable-gripping routing orientation is reached.

Please amend the paragraph beginning on page 5, line 5 to read as follows:

The impact head ~~and/or guardrail~~ according to the present invention may be manufactured from any resilient or impact resistant material or composite of materials of any nature.

Please add a new paragraph before the paragraph beginning on page 10, line 18 to read as follows:

Figure 1c: is an exploded view of the cable gripping means as shown in Figure 1a.

Please insert a new paragraph before the paragraph beginning on page 11, line 5 to read as follows:

Figure 6c and 6d: are schematic diagrams as shown in Figures 6a and 6b.

21 7/11/09
Please amend the paragraph beginning on page 11, line ~~20~~ to read as follows:

For the purposes of this illustrative description, Figures 1a, ~~and 1b~~ and 1c will be referred together as Figure 1; similarly Figures 2a and 2b will be referred to as Figure 2. The guardrail 1 shown has been split into two sections for illustrative purposes only, and sections A and A' in Figures 1a and 1b; and the same sections are labelled B and B' in Figures 2a and 2b should be joined to show an embodiment the guardrail according to the present invention.

4, Aug 7/11/09
Please amend the paragraph beginning on page 12, line ~~8~~ to read as follows:

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In a first embodiment of the present invention, and with reference to Figures 1 and 2 there is provided a guardrail 1 with a cable routing ~~or-gripping~~ means 2 at the terminal end. The cable ~~gripping-routing~~ means 2 may form part of an impact head (where an impact head is an additional guardrail bumper used to initially absorb some impact energy).

g, Aeg 7/1/09
Please amend the paragraph beginning on page 12, line 8 to read as

follows:

The cable ~~gripping-routing~~ means 2 (and optionally impact head) may be bolted to the first rail 3, at the other end of which is connected an impact slider device 4. The impact slider device 4 may facilitate the sliding of the first rail over each subsequent rail, thereby providing substantial telescoping ability to the guardrail, with each rail overlapping the next rail to enable this process during an end-on impact. The impact slider device may substantially surround the first rail and advantageously includes a portion 31 which gathers and retains telescoping railings during an impact.

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Please amend the paragraph beginning on page ¹⁵~~14~~, line ¹~~28~~ to read as

follows:

The embodiment shown in Figures 1 and 2 of a guardrail system consists of a soil anchoring system 11 at the terminal end of the guardrail and provides a means to attach two cables 15, 15a thereto. The cables are preferably threaded in a substantially S-shape (or Z-shape), through the cable routing gripping means 2, which may be a steel plate bolted to the terminal end of a length of rail 3 (or first post 7a). At the junction of the first 3 and second 5 rails (or sections of rails), there is an impact slider device or "slider" 4 that fits over the end of the first rail 3 and into which the next rail 5 may slide.

Please amend the paragraph beginning on page 15, line ⁹~~7~~ to read as

follows:

The cables 15, 15a, after being threaded through the cable gripping routing means 2, are positioned in a hollow or recess 14 of the back side of the length of the rail (for example, the rail may be a W-shaped beam). The cables may extend until a point 11a where they may be anchored to the rail (or post, or other anchoring means) at a post downstream of the cable gripping means 2 using

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one or more cable brackets 13 or other connecting and/or cable fixing means. Such means may be screw bolts, welded joints or other suitable devices enabling substantially secure cable anchoring. The cable may be tensioned, although this is not essential for the present invention to operate.

Please amend the paragraph beginning on page 15, line ¹⁸~~16~~ to read as

follows:

An alternative embodiment of the ~~impact-head~~guardrail is shown in Figure 4. The ~~impact-guardrail~~ head 24 includes: at least one cable routing means through which a cable is threaded in a tortuous path and which thereby provides resistance to cable movement therethrough. Ideally, the path of the cable through the cable routing means includes at least one substantially 180° turn, or is in a substantially S or Z-shape.

Please amend the paragraph beginning on page ¹⁶~~15~~, line ¹~~28~~ to read as

follows:

The cable routing means 2 may be a planar bar member 25 adapted to receive and allow at least one cable to pass therethrough via at least three cable

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drawings of Figures 6c and 6d where the bar 25 rotates about pivot point 200 in the direction of arrow X to form the tortuous path.

18 Aeg 7/1/09
Please amend the paragraph beginning on page 16, line 16 to read as follows:

In use, energy from a head on impact with the impact head/cable ~~gripping-routing~~ means 2 is initially substantially absorbed by support post (7a), which may subsequently fail, preferably substantially at or near ground level 16. For example the first support post 7a would normally be impacted at or by the impact head (not shown)/cable ~~gripping-routing~~ means, and absorb energy before preferably failing (that is, being broken). Should a support post fail and be broken off at a height substantially above ground level than that would contact the impacting vehicle and then the vehicle may collide with the broken post and result in more severe impact energy absorption (possibly resulting in vehicle occupant damage due to sudden movement arrest).

17 Aeg 7/1/09
Please amend the paragraph beginning on page 16, line 28 to read as follows:

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Similarly, as the slider device 4, impact head (not shown)/cable gripping-routing means 2 and first rail 3 (and subsequent rails) telescope down the second rail 5, rail 3 upon rail 5, each support post is impacted by the slider device 4 and preferably causes breakaway of the posts. Alternatively, a guardrail may also be provided in which just an impact slider is connected to the rails, and no cable gripping-routing means or impact head is attached.

2 Aeg 7/1/09
Please amend the paragraph beginning on page 17, line 8 to read as follows:

Preferably, the guardrail system employs energy absorption/dissipation systems which substantially control an impacting object momentum and directional motion. For example, energy may be absorbed or dissipated by the friction between the cable 15 and cable gripping-routing means 2. When the guardrail is impacted end on (that is, in the substantially longitudinal direction of the guardrail and impacting the impact head and/or cable gripping-routing means initially), the whole of rail 3, the impact head/cable gripping means 2 and the impact slider device 4 move back in a telescoping manner over rail 5 and then subsequent downstream rails, such as rail 5 and/or rail 6. Energy is also absorbed by the friction of the cables 15 running through the cable gripping

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routing means 2, wherein the threaded cable configuration through the cable routing means follows the tortuous pathway.

18 Aeg 7/1/09
Please amend the paragraph beginning on page 17, line 16 to read as

follows:

Preferably, as the cable ~~gripping~~routing means 2 is attached to or forms an integral part of a bumper or impact head, as the impact head and cable ~~gripping~~routing means move (as a result of an end-on impact with the impact head/guardrail), away from the cable anchor point 11, the cable ~~gripping~~routing means is effectively forced to move along the cable(s), whilst the cable(s) 15, 15a remain substantially stationary as a result of being fixed at each of their ends. In doing so, the cable is forced through a number of bending movements created by the threading configuration in the cable ~~gripping~~routing means. Preferably, the cable used has substantial resistance to flexing (such as steel cable), and energy is dissipated from the impact and imparted to energy used to bend the cable.

3 Aeg 7/1/09
Please amend the paragraph beginning on page 18, line 1 to read as

follows:

Amendment Dated: May 6, 2009

Response to Official Action Dated: November 10, 2008

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6 Alg 7/1/09
Please amend the paragraph beginning on page 16, line ~~4~~ to read as follows:

Alternatively, in an alternative embodiment of the impact head 100 as illustrated in Figures 3, 4, 5, 6a, and 6b, ~~6c and 6d~~ a bar member 25 can be provided with a cable entry port or ports P1, P2 adapted to receive and allow at least one cable to pass directly there through, when said bar member is in a first non-cable-gripping orientation 26. Subsequently, upon rotation of the bar member about its longitudinal axis (substantially perpendicular to the cables length) through at least 90°, a second cable-gripping orientation 27 is reached. Advantageously, the bar member may be secured in the second orientation by locking means (not shown), such as by bolts or screws. The rotation of the bar member 25 from said first orientation to the second orientation ensures that the at least one cable follows a tortuous pathway. The rotation of the bar member 25 may be undertaken, for example by a crow bar inserted into a slot, S1, and then an angular or rotational force applied. This is illustrated clearly in the schematic drawings of Figures ~~6c-6a~~ and ~~6d-6b~~ where the bar 25 rotates about pivot point 200 in the direction of arrow X to form the tortuous path.